Book Reviews

Advances in Enzymology

Volume 55

Edited by A. Meister

John Wiley & Sons; New York, Chichester, Brisbane, Toronto, Singapore, 1983

570 pages. £45.00

The latest volume in this series resembles previous ones in that it contains up to date reviews of a 'mixed-bag' of topics, some of which do overlap to a certain extent. The topics differ in their enzymological emphasis reflecting, no doubt, the interests of the various authors involved. One of the reviews, dealing with the characterisation of muscarinic receptors, seems out of place in that its enzymology content is very slight and scientists who are interested in this subject are unlikely to seek its coverage within an enzymology review publication.

The longest chapter deals with plant, low molecular mass, antimicrobial substances known as phytoalexins. Different classes of these compounds are described together with their routes of metabolism as far as they are known. The review is comprehensive but a somewhat tedious catalogue of phytoalexins is unlikely to excite the interest of the uncommitted reader. *E. coli* alkaline phosphatase is the subject of two of the chapters. This enzyme has long been the model for this class of phosphatase and the laboratory at Yale University, from where the reviews emanate, has contributed much in furthering understanding of structure-function relationships in alkaline phosphatase. One chapter describes the application of NMR to the elucidation of the mechanism of action of the enzyme, in particular, the role of metal ions. These studies illustrate the power of NMR in the study of metalloenzymes. The remaining chapter devoted to alkaline phosphatase details the progress that has been made in defining the crystal structure of the enzyme using X-ray diffraction.

The remaining chapters deal respectively with the use of oxygen chiral phosphate esters in studies of phosphohydrolase and phosphate transferase reactions, and the metabolism and toxicity of fluorinated substrate analogues. Chiral phosphates provide an elegant means of establishing whether a covalent intermediate is formed during catalysis and provide details of the mechanism of displacement reactions occurring at a phosphorus atom. The account of fluorinated substrate analogues is a fascinating one because of the pharmacological interest in these compounds as anaesthetics and suicide substrates, and because of their usefulness as probes of enzyme catalytic mechanisms.

Overall this volume is a worthy addition to the Advances series and maintains the standard that one has come to expect. It should take its place in all biochemistry libraries.

P.J. Butterworth

Copies of books for review in FEBS Letters should be sent to:

Professor H.R.V. Arnstein, Department of Biochemistry, King's College, Strand, London WC2R 2LS, England

Published by Elsevier Science Publishers B.V.
00145793/84/$3.00